Attorney's Docket No.: 14603-011US1
Client's Ref.: P2002,0723USN

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	: Thomas Mueller	Art Unit	: Not Yet Assigned
Serial No.	: Not Yet Assigned	Examiner	: Not Yet Assigned
Filed	: Herewith	PCT Appln No.:	PCT/EP03/09043
Title	: HALL SENSOR AND METHOD FOR THE OPERATION THEREOF		

Mail Stop Box PCT
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

PRELIMINARY AMENDMENT

Prior to examination, please amend above-identified application as follows:

CERTIFICATE OF MAILING BY EXPRESS MAIL

Express Mail Label No. EV 411823468 US

February 28, 2005
Date of Deposit

AMENDMENTS TO THE SPECIFICATION:

Please delete the centered and underlined title "DESCRIPTION" at page 1, line 1.

Please amend the title on page 1, line 2, as follows:

HALL SENSOR ~~AND METHOD FOR OPERATING IT~~

Please add the following centered heading on page 1 between lines 2 and 3:

TECHNICAL FIELD

Please add the following centered heading on page 2, between lines 4 and 5:

BACKGROUND

Please add the following centered heading on page 2, between lines 9 and 10:

SUMMARY

Please add the following centered heading on page 3, line 16:

DESCRIPTION OF THE DRAWINGS

Please amend the paragraph on page 3, lines 18 and 19, as follows:

Figure 2 shows a cross section, along the line II-II in Figure 1 2, of a Hall sensor for a first and second embodiment;

Please add the following centered heading on page 4, line 3:

DETAILED DESCRIPTION

Please replace the Abstract on page 10 with the following new Abstract:

A Hall sensor on a semiconductor substrate includes a Hall plate in the semiconductor substrate, where the Hall plate includes a first zone having a first conduction type. The semiconductor substrate also include a second zone having a second conduction type. A space-charge zone in the semiconductor substrate separates the first zone and the second zone, first contacts supply a control current to the first zone, and second contacts supply a compensation current to the second zone.

Please delete the phrase "Figure 1" on page 10, line 14.

AMENDMENTS TO THE DRAWINGS:

Please amend Figs. 4 and 5 as shown on the attached red-lined sheets. No new matter has been entered.

AMENDMENTS TO THE CLAIMS:

This listing of claims replaces all prior versions and listings of claims in the application:

LISTING OF CLAIMS:

1. (Currently Amended) A Hall sensor on a semiconductor substrate, the Hall sensor comprising: ~~(1)~~

~~in which~~ a Hall plate in the semiconductor substrate, the Hall plate comprising a first zone having a first conduction type ~~(2) is formed from a zone (33, 32) of one conduction type~~;

a second zone in the semiconductor substrate, the second zone having a second conduction type;

~~in which a zone (33, 32) adjoining the Hall plate (2), which zone (33, 32) is separated from said Hall plate (2) by~~ a space-charge zone in the semiconductor substrate, the space-charge zone separating the first zone and the second zone ~~(41), of the other conduction type is provided; and~~

~~in which the Hall plate comprises~~ first contacts ~~(311, 312, 313, 314, 321, 322, 323, 324)~~ for supplying a control current ~~(IS), while the zone (32, 33) of the other [[((Leistungstyp))]] conduction type comprises~~ to the first zone; and

second contacts ~~(311, 312, 313, 314, 321, 322, 323, 324)~~ for supplying a compensation current to the second zone ~~(IK)~~.

2. (Currently Amended) The Hall Sensor ~~according to~~ of claim 1, ~~in which~~ further comprising ~~the Hall plate (2) is arranged between two zones (31, 33) of the other~~ a third zone of the second conduction type outside of the first zone relative to the second zone.

3. (Currently Amended) The Hall sensor ~~according to~~ of claim 1, wherein the ~~in which the Hall plate (2) is arranged on the surface of the substrate (1), and in which the zone (32) of the other conduction type is embedded in a~~ semiconductor substrate ~~(1) of~~ has the second conduction type ~~of the Hall plate (2)~~.

4. (Currently Amended) ~~A method for operating a~~ The Hall sensor ~~according to any one of claims 1 to 3,~~ of claim 1, wherein a the compensation current ~~(IK)~~ flows parallel to the control current; and ~~(IS)~~

wherein a ~~whose magnitude is such that the~~ thickness ~~(D)~~ of the Hall plate ~~(2)~~ is ~~essentially~~ substantially constant.

5. (New) The apparatus of claim 1, wherein the first zone has an area that is one of cross-shaped, rectangular, square and circular.

6. (New) The apparatus of claim 1, wherein the second zone has an area that is one of cross-shaped, rectangular, square and circular.

7. (New) The apparatus of claim 1, wherein the first zone is N-doped and the second done is P-doped.

8. (New) An apparatus comprising:

a first zone having a first doping, the first zone carrying a compensation current;

a second zone having a second doping, the second zone carrying a control current;

a third zone having the first doping;

a first separation zone that separates the first and second zones, the compensation current affecting a thickness of the first separation zone; and

a second separation zone that separates the second and third zones, the control current affecting a thickness of the second separation zone.

9. (New) The apparatus of claim 8, wherein the compensation current and the control current affect thicknesses of the first and second separation zones to maintain a substantially constant thickness of the second zone.

10. (New) The apparatus of claim 8, wherein the first zone has an area that is one of cross-shaped, rectangular, square and circular.

11. (New) The apparatus of claim 8, wherein the second zone has an area that is one of cross-shaped, rectangular, square and circular.

12. (New) The apparatus of claim 8, wherein the first and third zones are P-doped and the second done is N-doped.

13. (New) The apparatus of claim 8, wherein the first and second separation zones comprise space-charged zones that are not doped.

14. (New) The apparatus of claim 8, wherein the first zone comprises contacts for receiving the compensation current; and

wherein the second zone comprises contacts for receiving the control current.

15. (New) An apparatus comprising:

a first zone having a first doping, the first zone carrying a control current;

a second zone having a second doping, the second zone carrying a compensation current; and

a separation zone that separates the first and second zones, the control current and the compensation current keeping a thickness of the first zone and a thickness of the separation zone substantially constant.

16. (New) The apparatus of claim 15, wherein the first zone has an area that is one of cross-shaped, rectangular, square and circular.

17. (New) The apparatus of claim 15, wherein the second zone has an area that is one of cross-shaped, rectangular, square and circular.

18. (New) The apparatus of claim 15, wherein the first zone is P-doped and the second done is N-doped.

19. (New) The apparatus of claim 15, wherein the separation zone comprises a space-charged zone that is not doped.

20. (New) The apparatus of claim 15, wherein the first and second zones comprise contacts for receiving current.

REMARKS

Applicant presents claims 1 to 20 for examination. Claims 1, 8 and 15 are independent.

Entry hereof and early passage to issue are respectfully requested.

Applicant's attorney can be reached at the address shown above. All correspondence should continue be directed to Paul A. Pysher at the same address.

Please apply any fees associated with this Preliminary Amendment or the accompanying application, which have not already been covered by check, to Deposit Account 06-1050.

Respectfully submitted,

Date: February 28, 2005

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FIG 4

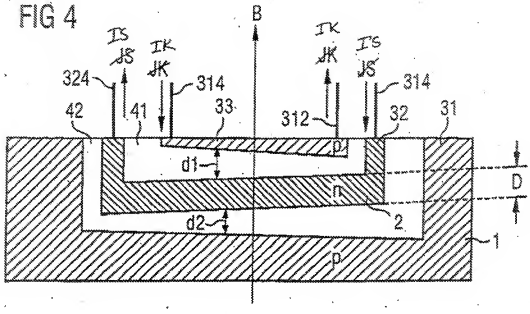
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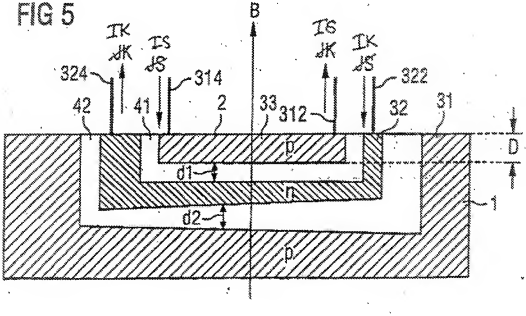
FIG 5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Attorney's Docket No. [redacted]03-011US1 / P2002.0723 US N

10/526137

DT01 Rec'd PCT/PTO 28 FEB 2005

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Art Unit : Unknown
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INFORMATION DISCLOSURE STATEMENT

Applicant requests consideration of the references listed on the attached PTO-1449 form. Under 37 C.F.R. § 1.98 (a)(2)(ii), only copies of foreign patent documents and/or non-patent literature are enclosed. Copies of any listed U.S. patents or U.S. patent application publications can be provided upon request.

This statement is being filed with the application. Please apply any charges or credits to Deposit Account No. 06-1050.

Respectfully submitted,

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Substitute Form PTO-1449 (Modified) U.S. Department of Commerce Patent and Trademark Office	Attorney's Docket No. 14603-011US1	Application No. 10/526137
Information Disclosure Statement by Applicant (Use several sheets if necessary)	Applicant Thomas Mueller	
	Filing Date	Group Art Unit

(37 CFR 1.98(b))

U.S. Patent Documents

Examiner Initial	Desig. ID	Document Number	Publication Date	Patentee	Class	Subclass	Filing Date If Appropriate
	AA	4,929,993	05/29/1990	Radivoje Popovic			
	AB	3,825,777	07/23/1974	Roland J. Braun			
	AC	5,679,973	10/21/1997	Hiroshi Mochizuki et al			
	AD	4,634,961	01/06/1987	Radivoje Popovic et al			
	AE						
	AF						
	AG						
	AH						
	AI						
	AJ						
	AK						

Foreign Patent Documents or Published Foreign Patent Applications

Examiner Initial	Desig. ID	Document Number	Publication Date	Country or Patent Office	Class	Subclass	Translation Yes	Translation No
	AL	0 735 600	10.02.96	EPO				
	AM	0 162 214	03/13/85	EPO			Abstract	
	AN	0 204 135	04/26/86	EPO			Abstract	
	AO	663 686	12/31/87	Switzerland			Abstract	
	AP	43 08 375	09/22/94	Germany			Abstract	

Other Documents (include Author, Title, Date, and Place of Publication)

Examiner Initial	Desig. ID	Document
	AQ	Mani, R.G. et al "Temperature-insensitive Offset Reduction in a Hall Effect Device" Applied Physics Letter, Vol 64, No 23, June 1994 pp. 3121-3123, XP000449593
	AR	P.J.A. Munter "A Low Offset Spinning-current Hall Plate" Sensors & Actuators A, A22 (1990), pp 743-746
	AS	
	AT	

Examiner Signature	Date Considered

EXAMINER: Initials citation considered. Draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.